new claims 29-36, 38-43, 50, and 52-57), in the specification at page 6, lines 9-18 and page 9, line 26 to page 10, line 15 (support for new claims 44-48), and in the specification at page 7, lines 2-4 and 11-13 (support for new claims 37 and 49).

In Paper No. 17, the Examiner indicated that claims 27 and 28 would be allowable "if rewritten in independent form including all of the limitations of the base claim(s) and any intervening claims." The applicants point out that new claims 47 and 48 contain the subject matter of cancelled claims 27 and 28; therefore, it is submitted that the Examiner's statement with regard to claims 27 and 28 applies to new claims 47 and 48.

The specification has been amended to render it more fully compliant with the rules concerning the use of trademarks and trade names in patent applications. The amendment does not constitute new matter, as a person of skill would have been knowledgeable as to the generic compositions of each of the trademarked products, at the time of filing. *See, e.g.,* Kibbe, A.H., ed., The Handbook of Pharmaceutical Excipients, 3rd ed., American Pharmaceutical Assoc., London, 2000, at page 402 (showing the generic compositions of the various trademarked products), a copy of which is enclosed herewith for the Examiner's review.

In accordance with 37 C.F.R. § 1.121, a marked-up version of the amended portion of the specification is enclosed.

Rejection Under 35 U.S.C. § 112, First Paragraph.

The Examiner has rejected claims 1-17, 19, and 21-26 under 35 U.S.C. § 112, first paragraph, asserting that the specification does not enable the full scope of the claims. In particular, the Examiner argues that the specification does not reasonably provide enablement for (i) a thromboxane synthase A_2 inhibitor or a thromboxane A_2/prostaglandin endoperoxide receptor agonist, (ii) "a rate controlling membrane which coats the inner core," and (iii) adaptations other than the use of "the disclosed coating compounds." As indicated above, claims 1-17, 19, 21-26 have been cancelled; however, the applicants respectfully traverse these rejections should they be applied to any of new claims 29-57.

A claimed invention is enabled if any person skilled in the art (hereafter "person of skill" can make and use the invention without undue experimentation. M.P.E.P. 2164.01, citing *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1998). The test of enablement is whether this person of skill could make or use the invention based upon the disclosures in the patent coupled

with information known in the art, without undue experimentation. *Id.* It is well-settled that a patent need not teach, and preferably omits, what is well known in the art. *Id.*

Contrary to the Examiner's assertion, a person of skill in the art could easily and routinely ascertain whether a drug is a thromboxane synthase A_2 inhibitor or a thromboxane A_2/protaglandin endoperoxide receptor antagonist. First, the specification itself provides sufficient enabling information. At page 3 of the specification, specific thromboxane A_2 inhibitors and thromboxane A_2/prostaglandin endoperoxide receptor antagonists are disclosed, by incorporation of U.S. Patent No. 4,963,573 (discussing and disclosing thromboxane synthase inhibitors and assays for evaluation of inhibitory activity).

Additionally, even in the absence of such disclosure, the claim terms "thromboxane A_2 inhibitors" and "thromboxane A_2/prostaglandin endoperoxide receptor antagonists" are yet enabled, as a person of skill, given the information known in the art, would be able to ascertain those drugs that are thromboxane A_2 inhibitors or thromboxane A_2/prostaglandin endoperoxide receptor antagonists. Such terms are commonly used in the art to designate a class of drugs which exhibit the particular activity. *See, e.g.,* U.S. Patent No. 5,410,064 (discussing and disclosing inhibitors of thromboxane synthase A_2 and thromboxane A_2 receptor antagonists, as well as assays by which one can determine whether a given compound exhibits the requisite inhibitory or antagonistic properties); U.S. Patent No. 5,296,494 (teaching inhibitors of the activity of the enzyme responsible for thromboxane A_2 synthesis (thromboxane A_2 synthase), compounds which are thromboxane A_2 receptor antagonists, and assays by which one can determine whether a given compound exhibits the requisite inhibitory or antagonistic properties). Copies of these patents are enclosed with the Supplemental Information Disclosure Statement submitted herewith.

Given both the information in the art with which the person of skill is charged and the disclosures provided in the instant specification, a person of skill would have been able, without undue experimentation, to determine those drugs that are thromboxane synthase inhibitors or thromboxane A_2/prostaglandin endoperoxide receptor antagonists, and therefore easily and routinely ascertain the scope of the claim. Accordingly, the claim terms "thromboxane A_2 inhibitors" and "thromboxane A_2/prostaglandin endoperoxide receptor antagonists" are fully enabled by the specification.

Additionally, it appears that the Examiner contends that those portions of the claims reciting "a rate controlling membrane which coats the inner core" are not enabled, as, according to the Examiner, a person of ordinary skill would have had to engage in undue experimentation in order to determine which membranes would be suitable, including making determinations of the appropriate membrane thicknesses, pH solubility, and degradability. The applicants disagree.

Determination of which rate controlling membrane(s) would be suitable for use in a specific embodiment of the claimed invention is well within the routine skill of a person of skill in the art. *See,* Declaration Under 37 C.F.R. § 1.132 of Peter James Watts at ¶ 5, (hereinafter "Dec."), attached hereto. Such rate controlling membranes are disclosed in the literature, which is known to the person of skill in the art, such as, Hogan J., "Film Coatings for Controlled Release Multiparticulate Dosage Forms," Multiparticulate Controlled Release Oral Dosage Forms: Technology and Biopharmaceutics, eds. Melia et al., Scottish Academic Press, Edinburgh, pages 36-49 (1994), and Bauer, et al., Coated Pharmaceutical Dosage Forms, CRC Press, Boca Raton, at least at pages 69-70 (1998), copies of which are enclosed with the Supplemental Information Disclosure Statement submitted herewith.

In addition, rate controlling membranes are disclosed in the specification at pages 7 and 8. Based upon what is known in the prior art and the disclosures of the instant application, a person of skill would recognize that the thickness, pH, permeability, and degradability of the rate controlling membrane for use in the invention would necessarily vary, depending on the polymer used in the membrane, the solubility of the drug in question, and the duration of the release desired in the coated formulation, and could easily have made such determinations without undue experimentation based upon the instruction provided in the art and/or the specification. Thus, those portions of the claims reciting rate controlling membrane(s) are fully enabled by the specification.

At page 2 of Paper No. 17, the Examiner asserts that the specification does not enable those portions of the claim which are directed to "adaptations" other than "use of the disclosed coating compounds." It is noted that new claims 29-57 do not contain this term. Rather, the new claims are directed to compositions containing "means to prevent release of a drug," and "compositions which prevent release of the drug until the composition reaches the terminal ileum or colon upon administration to the patient." Such claim elements are fully

enabled by the specification, for example, at pages 8-11. Additionally, such means are disclosed and discussed in the art, and accordingly, well known to the person of skill in the art. *See, e.g.,* Hardy, J.G., et al., eds., Drug Delivery to the Gastrointestinal Tract, Halsted Press, New York, page 92 (1989), a copy of which is enclosed with the Supplemental Information Disclosure Statement submitted herewith.

In view of the foregoing, it is respectfully requested that the Examiner withdraw the § 112, first paragraph, rejections and not apply them to the new claims.

Rejection Under 35 U.S.C. § 112, Second Paragraph.

At pages 3-4, the Examiner has maintained his rejection of claims 1-17, 19, and 21-26 under 35 U.S.C. § 112, second paragraph, asserting that such claims are "incomplete for omitting essential elements and steps." In particular, the Examiner has articulated that such allegedly necessary steps and/or elements include the thickness of the membrane and the pH solubility of the membrane. Additionally, the Examiner suggests amending claim 19 to include "an amount of drug effective to treat said intestinal diseases."

With regard to the § 112 rejection on the ground that the claims must necessarily include the pH solubility and thickness of the membrane, the applicants respectfully traverse the rejection. A person of skill would have easily recognized that the pH solubility and thickness of the membrane would necessarily vary, depending on the polymer used in the membrane, the solubility of the drug in question, and the duration of the release desired in the coated formulation. However, as discussed above, such determinations are well within the routine abilities of the person of skill. Omission of the membrane pH solubility and thickness does not render the claim indefinite; the Examiner's imposition of such requirement is an attempt to impermissibly and unnecessarily require the applicants to restrict the claims to subject matter lesser in scope than that to which they are entitled. Accordingly, it is requested that the Examiner reconsider and withdraw the rejection.

Claim 19 has been cancelled. The corresponding new claim, claim 57, includes the recitation that the "composition contain[s] an effective amount of a drug." The Examiner' s rejection is therefore no longer applicable. Reconsideration and withdrawal of the rejection is requested.

The Examiner also rejected claim 6 for use of the trademark "EUDRAGIT™ NE30D," asserting that such trademark renders the claim indefinite. Claim 6 has been cancelled. The corresponding new claim, claim 34, does not identify the composition by trademark, but contains the name of the composition identified by its generic composition, namely, "poly(ethyl) acrylate methyl methacrylate." This amendment does not constitute new matter, as a person of skill would have been knowledgeable as to the generic compositions of each of the trademarked products, at the time of filing. *See, e.g.,* Kibbe, A.H., ed., The Handbook of Pharmaceutical Excipients, 3rd ed., American Pharmaceutical Assoc., London, 2000, at page 402, a copy of which is enclosed herewith for the Examiner's review. Thus, the generic composition was implicitly disclosed and the claim amendment is not new matter.

Finally, at pages 4-5, the Examiner has rejected claims 13, 15, 16, 21, and 23 for use of various phrases, which the Examiner asserts render the claims indefinite. Claims 13, 15, 16, 21, and 23 have been cancelled, and the corresponding new claims do not contain language upon which the Examiner based his 35 U.S.C. § 112, second paragraph, rejection. As the rejection is therefore no longer applicable, reconsideration and withdrawal are requested.

Accordingly, for all of the reasons set forth above, it is respectfully submitted that the claims are fully compliant with 35 U.S.C. § 112, second paragraph, and reconsideration and withdrawal of the rejections are respectfully requested.

Rejection Under 35 U.S.C. § 102(e).

The Examiner has rejected claims 1, 4-12, 14-17, 19, and 23 under 35 U.S.C. § 102(e), asserting that such claims are anticipated by the disclosure of U.S. Patent No. 5,713,967 of Juch ("Juch"). As basis for this rejection, the Examiner asserts that Juch expressly discloses a composition comprising a pellet, wherein the pellet contains an inner core, a sodium salt of diclofenac coated on the core, and a membrane layer containing ethyl cellulose and/or methacrylates. The composition, according to the Examiner, can be administered in capsules. Additionally, the Examiner asserts that Juch discloses a method of administration of such composition. Claims 1, 4-12, 14-17, 19, and 23 have been cancelled. However, the applicants traverse this rejection, should it be applied to any of new claims 29-57.

The instant invention as claimed is a controlled release composition. The composition may comprise at least two parts: (a) at least one pellet; and (b) means to prevent

release of a drug until the composition reaches the terminal ileum or colon. Alternatively, the invention is directed to a composition comprising at least one pellet, wherein the composition prevents release of the drug until the composition reaches the terminal ileum or colon. The at least one pellet included in the composition has an inner core. This inner core, which is a component of the pellet, is coated with a rate-controlling membrane that determines the rate of drug release. Further, the inner core includes a drug of specified form and solubility.

The invention also includes a method of making the composition, a method of improving the controlled release profile of a drug by administering the composition, and a method for the treatment of various conditions using the composition.

In order to anticipate the claimed invention, a cited reference must teach each element of the invention as claimed. Juch discloses a composition containing, at its center, an inert pellet which contains diclofenac and adjuvants. This inner pellet is coated with an "inner membrane". The inner membrane comprises one or more water insoluble polymers, such as acrylic resins, EUDRAGIT™ RL30D, RS30D, and E30D. The inner membrane also includes one or more pore-forming agents (water-soluble or water insoluble) such as kaolin, calcium carbonate, MgO, TiO_2, FeO, celluloses, PEG, PG, sodium citrate, and methyl cellulose. On the outside of the inner membrane, the composition of Juch is coated with a final "film coating" which is resistant to gastric juice (dissolving only above a pH of 5.5). It is disclosed in Juch that this film coating is an acid insoluble polymer, such as EUDRAGIT™ RL30D or RS30D. However, the Juch composition releases the drug almost immediately upon administration.

Contrary to the Examiner's position, Juch does not teach each element of the invention as claimed. Juch does not teach means to prevent the release of a drug until the composition reaches the terminal ileum or colon following oral administration of the composition, nor does it teach a composition which prevents the release of the drug until the composition reaches the terminal ileum or colon. There is no disclosure in Juch, either express or implied, which indicates that the Juch composition includes means for preventing the release of the active ingredient until the Juch preparation has reached the terminal ileum or colon, nor is there any disclosure of a Juch preparation which prevents the release of the drug until it reaches the terminal ileum or the colon. While the absence of these elements in the Juch preparation is not expressly stated, it would have been readily apparent to a person of ordinary skill in the art, based upon the disclosures of Juch.

For example, the active ingredient disclosed for use in the Juch preparation is diclofenac. Diclofenac is an analgesic and anti-inflammatory drug, often used (as it is in the preparation of Juch) in the therapy of rheumatism. Juch states that the Juch diclofenac preparation "is followed as quickly as possible by analgesia . . .." Col. 3, line 59-60. Given the structure of the digestive tract, such disclosure would have caused a person of ordinary skill in the art to recognize that the preparation of Juch permits release of the active ingredient (diclofenac) well before the preparation reaches the terminal ileum or colon, for example releasing the active ingredient into the upper intestine. Dec. at ¶ 7.

Additionally, a comparison of dissolution tests carried out under identical conditions of a composition of the invention and of a diclofenac preparation of Juch demonstrates that the Juch preparation does not prevent release of the active ingredient until the preparation has reached the terminal ileum or colon, but rather begins to release the active ingredient almost immediately upon ingestion. Data supporting this statement are provided to the Examiner by the enclosed Declaration of Peter James Watts.

To carry out the comparative dissolution tests, a diclofenac preparation as taught in Juch was prepared. The preparation taught in Example 2 of Juch was selected to be a representative formulation for use in the comparative testing, with the exception that red iron oxide was not included in the formulation, as it acts as a colorant and has no effect on the dissolution profile. Dec. at ¶ 10. Example 2 was selected because, according to Dr. Watts, who is a person of at least ordinary skill in the art, the other examples of Juch are similarly put together, contain similar components, and therefore would not exhibit significantly different release profiles. Dec. at ¶ 11.

To prepare the preparation of Example 2, an active ingredient layer was prepared as disclosed in Juch by coating non-pareil seeds with a layer containing diclofenac sodium to a weight gain of 120%, as is taught in Juch. Dec. at ¶ 12. Secondly, the inner layer of the Juch composition was prepared, as taught in Juch Example 2. Dec. at ¶ 13, followed by the application of the film coating layer, Dec. at ¶ 14. The Eudragit L30D aqueous suspension used in Juch was not available; however, Dr. Watts prepared an equivalent coating mixture by dispersing the dry form of the coating polymer (Eudragit L100-55) in a sodium hydroxide solution. Dec. at ¶ 14. Such resultant coating mixture has identical properties to the Eudragit

L30D polymer disclosed in Juch. *Id.* Finally, the pellets thereby obtained were enclosed in size 0 hard gelatin capsules as suggested by Juch. Dec. at ¶ 16.

Using the capsules formulated as described above in accordance with the disclosures of Juch, dissolution testing was performed under the same conditions described in the present application, at page 20, lines 1-6. Dec. at ¶¶ 17-21. Specifically, dissolution testing was performed using a VanKel dissolution apparatus set at 37° C and fitted with paddles rotating at 50 rpm. Dec. at ¶ 17. The vessels were filled with a phosphate buffer having a pH of 6.8. Dec. at ¶ 17. The dissolution profile was obtained, and can be seen at Fig. 1 of the Declaration (Exhibit F of Dec.).

As can be seen from Fig. 1, and as is implied in the disclosure of Juch, no significant delay in active ingredient release from the Juch preparation is observed. A person of ordinary skill in the art would have recognized that a delay in drug release of around 90 to 120 minutes in a pH 6.8 dissolution (the pH of the intestinal environment) is necessary to provide sufficient evidence that a given preparation will provide for colon-specific delivery *in vivo*. Dec. at ¶ 19; *see, also*, International Patent Application No. WO 95/35100 (Exhibit C of Dec.) (describing, at Example 3, starch capsules that dissolve after 160 minutes at pH 6.8-*in vivo* which correlates to disintegration of the capsules in the more distant regions of the colon, for example, the transverse colon and/or the descending colon). No delay of drug release is exhibited in the Juch composition, rather, at 120 minutes after administration, at least 30% of the diclofenac is released. This in stark contrast to the compositions of the claimed invention, for which release does not occur in pH 6.8 buffer until at least approximately 3.7 hours after administration, which correlates to release in the terminal ileum or colon *in vivo*. *See,* Figure 6 of the instant application. Accordingly, for at least the reasons given above, Juch does not teach each element of the invention as claimed, and therefore does not anticipate it.

Rejection Under 35 U.S.C. § 103(a).

In the alternative, the Examiner has rejected claims 1, 4-12, 14-17, 19, and 23 under 35 U.S.C. § 103(a), asserting that such claims are obvious over the disclosure of Juch, for the same reasons for which the Examiner asserted that Juch was anticipatory. The Examiner argues "at the very least, the claimed invention is rendered obvious within the meaning of 35 U.S.C. §103 because the prior art discloses products and uses that contain the same exact

ingredient/components as that of the claimed invention." The Examiner cites *In re May*, 197 U.S.P.Q. 601, 607 (CPA 1978) and *Ex parte Novitski*, 26 U.S.P.Q. 2d 1389, 1390-91 (Bd. Pat. App. and Inter. 1993) to support this statement. Although the rejected claims have been cancelled, the applicants traverse this rejection, should it be applied to any of new claims 29-57.

To establish a *prima facie* case of obviousness based upon a single reference, the Examiner must demonstrate: (i) that the cited reference teaches or suggests each element of the claimed invention; (ii) that a person of ordinary skill in the art would have been motivated to modify the cited reference as proposed by the Examiner; and (iii) that a person of ordinary skill would have had a reasonable expectation that such modification would have been successful. In light of these criteria, the Examiner has failed to establish that Juch renders the claimed invention obvious.

First, for the reasons discussed above, Juch does not teach or suggest each element of the invention as claimed. Specifically, the Juch diclofenac preparation does not contain means to prevent the release of the active ingredient until the preparation has reached the terminal ileum or the colon, nor does the preparation prevent such release until the preparation reaches the terminal ileum or colon.

Additionally, there is no motivation or provocation in Juch which would have caused a person of ordinary skill to modify Juch in order to arrive at the present invention, nor would there have been any expectation that such modification would be successful. First, as discussed above, Juch is directed to a preparation containing diclofenac, an analgesic, used in the treatment of rheumatism and other painful inflammatory conditions. As the purpose of ingesting diclofenac is to relieve inflammation and associated pain, it is desirable that the release of the drug occur as soon as possible after administration. In fact, Juch teaches this itself, stating that one of the objects of the invention is to "provide an oral preparation containing diclofenac . . . whose administration is followed as quickly as possible by analgesia." Thus, a person of ordinary skill would have had no reason to modify Juch to arrive at a composition which delays release of the diclofenac, namely a composition which prevents release of the active ingredient until the preparation has reached the terminal ileum or colon, as is presently claimed.

In addition, neither of the cases cited by the Examiner to support his assertion of obviousness, *In re May* [sic] and *Ex parte Novitiski*, is applicable to the present situation. First, it is well settled that determinations of obviousness must be made upon consideration of the

invention as a whole. The mere fact that a prior art reference discloses an article composed of similar component parts and sub-parts does not automatically give rise to the conclusion that such reference renders the claimed invention obvious, if all the elements of the *prima facie* case are not met by the Examiner.

Second, both *May* and *Novitiski* address situations where the claim element that the applicant asserted was absent from the prior art was not expressly articulated in the prior art reference. The elements were, however, inherently present by virtue of the physical structure of one of the disclosed component parts and such presence was verified by empirical data. *In re May and Eddy,* 197 U.S.P.Q. 601, 606-607 (C.C.P.A 1978) (On consideration of an appeal of an obviousness rejection, the Court held the claims to lack novelty when the cited prior art disclosed use of a specific compound to induce analgesia and the claims were directed to use of the same compound to induce analgesia without producing physical dependence (addiction), asserting the applicants had merely recognized a previously unrecognized, but inherently present, benefit of the disclosed use); *Ex parte Novitski*, 1389, 1391 (B.P.A.I. 1993) (Reversing a § 103 rejection and entering a new § 102 rejection, the Board held that a cited prior art reference disclosing inoculation of a plant with a specific bacterial strain to protect the plant from fungal disease anticipates claims directed to inoculation of the plant with the same bacterial strain to protect against pathogenic nematodes because the bacterial strain inherently possessed nematode inhibitory activity, even though such activity was not expressly disclosed in the prior art reference.)

Neither of these cases is applicable in the present situation, as Juch does not expressly disclose or inherently possess all of the elements of the invention as claimed. Namely, the Juch preparation does not include a means of preventing the release of the drug until the composition reaches the terminal ileum or colon, or a composition that prevents release of the drug until the composition reaches the terminal ileum or colon.

Accordingly, for at least the reasons given above, Juch does not render the claimed invention obvious. Consequently, it is respectfully requested that the Examiner reconsider and withdraw his rejections over Juch.

CONCLUSION

In view of the foregoing, it is respectfully submitted that claims 29-57 are fully distinguished over all art of record and known to applicant. Additionally, it is submitted that the new claims 29-57 are fully compliant with 35 U.S.C. § 112. Accordingly, reconsideration and allowance of the claims are respectfully requested at the earliest opportunity.

Respectfully submitted,

PETER JAMES WATTS

13 May 2002
(Date)

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Enclosures:
- *Marked-Up Version of Specification;*
- *Kibbe, A.H., ed., Handbook of Pharmaceutical Excipients, 3rd ed., American Pharmaceutical Assoc., London, 2000, p. 402;*
- *Declaration Under 37 C.F.R. § 1.32 of Peter James Watts.*

Attorney Docket No.
10774-40US

Marked-Up Version of Specification

U.S. Patent Application No. 09/269,903

Shown below are the changes to replacement paragraph beginning at page 7, line 15, and ending at page 8, line 7, of the specification. Please note that deletions are indicated by brackets and insertions are indicated by underlining.

-- In general, the preferred controlled release coating materials which may be employed in the rate-controlling membrane of the compositions according to the invention include those which form a water-insoluble but water-permeable layer and from which release of drug is by diffusion through the layer. By "water-insoluble" we mean "sparingly soluble" as defined in British Pharmacopoeia (1988). By "water-permeable" we mean that at least 10% of water, held continuously in contact with the layer, will penetrate the layer within two hours (the degree of permeation may be measured in accordance with the techniques which are well known to those skilled in the art). The coating polymer may be inherently water-permeable or become water-permeable through the incorporation of other additives such as plasticisers or pore forming agents. Suitable coating polymers include methacrylate copolymers, ethylcellulose, etc. Preferred coating materials are the permeable, water insoluble grades of pharmaceutical polymethacrylates (Eudragit® RL100 (poly(ethyl acrylate, methyl methacrylate, trimethylammonioethyl methacrylate chloride) 1:2:0.2), Eudragit RS100/RS30D (poly(ethyl acrylate, methyl methacrylate, trimethylammonioethyl methacrylate chloride) 1:2:0.1), Eudragit NE30D (poly ethyl acrylate, methyl methacrylate) 2:1), Rohm Pharma, Darmstadt, Germany) and ethylcellulose. Eudragit RL100 and RS100 contain quaternary ammonium groups which may interact with ionised weakly acidic drugs and hence the most preferred coating materials are ethylcellulose and Eudragit NE30D. Ethylcellulose may be applied as a solution in an organic solvent or as a proprietary water-based latex preparation (e.g. Aquacoat®, FMC, Philadelphia, USA or Surelease®, Colorcon, West Point, USA). --

Handbook of PHARMACEUTICAL EXCIPIENTS

Third Edition

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Table I: Chemical name and CAS Registry Number of polymethacrylates.

Chemical name	Trade name	Company name	CAS number
Poly(butyl methacrylate, (2-dimethyl aminoethyl) methacrylate, methyl methacrylate) 1:2:1	*Eudragit E 100*	Rohm GmbH	[24938-16-7]
	Eudragit E 12.5	Rohm GmbH	
Poly(ethyl acrylate, methyl methacrylate) 2:1	*Eudragit NE 30 D* (formerly *Eudragit 30 D*)	Rohm GmbH	[9010-88-2]
Poly(methacrylic acid, methyl methacrylate) 1:1	*Eudragit L 100*	Rohm GmbH	[25806-15-1]
	Eudragit L 12.5	Rohm GmbH	
	Eudragit L 12.5 P	Rohm GmbH	
Poly(methacrylic acid, ethyl acrylate) 1:1	*Eudragit L 30 D-55*	Rohm GmbH	[25212-88-8]
	Eudragit L 100-55	Rohm GmbH	
	Eastacryl 30D	Eastman Chemical	[25212-88-8]
	Kollicoat MAE 30 D	BASF Fine Chemicals	[25212-88-8]
	Kollicoat MAE 30 DP	BASF Fine Chemicals	
Poly(methacrylic acid, methyl methacrylate) 1:2	*Eudragit S 100*	Rohm GmbH	[25086-15-1]
	Eudragit S 12.5	Rohm GmbH	
	Eudragit S 12.5 P	Rohm GmbH	
Poly(ethyl acrylate, methyl methacrylate, trimethylammonioethy methacrylate chloride) 1:2:0.2	*Eudragit RL 100*		[33434-24-1]
	Eudragit RL PO	Rohm GmbH	
	Eudragit RL 30 D	Rohm GmbH	
	Eudragit RL 12.5	Rohm GmbH	
Poly(ethyl acrylate, methyl methacrylate, trimethylammonioethyl methacrylate chloride) 1:2:0.1	*Eudragit RS 100*		[33434-24-1]
	Eudragit RS PO	Rohm GmbH	
	Eudragit RS 30 D	Rohm GmbH	
	Eudragit RS 12.5	Rohm GmbH	

Table II: Solubility of commercially available polymethacrylates in various solvents.

Type	Solvent						
	Acetone and alcohols[a]	Dichloromethane	Ethyl acetate	1N HCl	1N NaOH	Petroleum ether	Water
***Eudragit*, Röhm GmbH**							
Eudragit E 12.5	M	M	M	M	—	M	—
Eudragit E 100	S	S	S	—	—	I	I
Eudragit L 12.5 P	M	M	M	—	M	P	P
Eudragit L 12.5	M	M	M	—	M	P	P
Eudragit L 100-55	S	I	I	—	S	I	I
Eudragit L 100	S	I	I	—	S	I	I
Eudragit L 30 D-55[b] M[c]	—	—	—	M[d]	—	M	
Eudragit S 12.5 P	M	M	M	—	M	P	P
Eudragit S 12.5	M	M	M	—	M	P	P
Eudragit S 100	S	I	I	—	S	I	I
Eudragit RL 12.5	M	M	M	—	—	P	M
Eudragit RL 100	S	S	S	—	—	I	I
Eudragit RL PO	S	S	S	—	I	I	I
Eudragit RL 30 D	M[e]	M	M	—	I	I	M
Eudragit RS 12.5	M	M	M	—	—	P	M
Eudragit RS 100	S	S	S	—	—	I	I
Eudragit RS PO	S	S	S	—	I	I	I
Eudragit RS 30 D	M[e]	M	M	—	I	I	M
***Eastacryl*, Eastman Chemical Company**							
Eastacryl 30D[b]	M[c]	—	—	—	M[d]	—	M
***Kollicoat*, BASF Fine Chemicals**							
Kollicoat MAE 30 D[b]	M[c]	—	—	—	M[d]	—	M
Kollicoat MAE 30 DP[b]	M[c]	—	—	—	M[d]	—	M

Where: S = soluble; M = miscible; I = insoluble or immiscible; P = precipitates.

[a] Alcohols including ethanol, methanol and propan-2-ol.

[b] Supplied as a milky-white colored aqueous dispersion.

[c] A 1:5 mixture forms a clear, viscous, solution.

[d] A 1:2 mixture forms a clear or slightly opalescent, viscous liquid.

[e] A 1 part of both *Eudragit RL 30 D* and *Eudragit RS 30 D* dissolve completely in 5 parts acetone, ethanol or propan-2-ol to form a clear or slightly turbid solution. However, when mixed in a ratio of 1:5 with methanol, *Eudragit RL 30 D* dissolves completely, whereas *Eudragit RS 30 D* only partially.